

=> d his

(FILE 'CA' ENTERED AT 08:43:15 ON 02 NOV 2004)  
L1 296 S COHERENT?(3A) (MICROWAVE OR MICRO WAVE OR GHZ)  
L2 23 S L1 AND REFLECT?  
L3 0 S L1 AND (CANCER? OR MALIGN? OR TUMOR?)  
L4 157 S L1 AND(DIAGNOS? OR SCREEN? OR MEASUR? OR MONITOR? OR DETECT? OR  
DETERMIN? OR ANALY?)  
L5 16 S L4 AND(SCATTER? OR BACKSCATTER?)  
L6 141 S L4 NOT L5  
L7 30 S L6 AND(TRANSIEN? OR SENSING OR BROADBAND OR SPECTROMETER)  
FILE 'BIOSIS' ENTERED AT 08:57:06 ON 02 NOV 2004  
L8 7 S L1  
FILE 'MEDLINE' ENTERED AT 08:57:23 ON 02 NOV 2004  
L9 9 S L1  
FILE 'CA, BIOSIS, MEDLINE' ENTERED AT 08:58:19 ON 02 NOV 2004  
L10 76 DUP REM L2 L5 L7 L8 L9 (9 DUPLICATES REMOVED)

=> d bib,ab 1-76 l10

L10 ANSWER 8 OF 76 CA COPYRIGHT 2004 ACS on STN  
AN 139:65602 CA  
TI Broadband 10-300 GHz stimulus-response sensing for chemical and  
biological entities  
AU Choi, Min Ki; Taylor, Kimberly; Bettermann, Alan; van der Weide, D. W.  
CS Department of Electrical & Computer Engineering, University of  
Wisconsin-Madison, Madison, WI, 53706-1691, USA  
SO Physics in Medicine & Biology (2002), 47(21), 3777-3787  
AB By illuminating the sample with a broadband 10-300 **GHz** stimulus and  
**coherently** detecting the response, we obtain **reflection** and  
transmission spectra of common powd. substances, and compare them as a  
starting point for distinguishing concealed threats in envelopes and on  
personnel. Because these samples are irregular and their dielec.  
properties cannot be modulated, however, the spectral information we  
obtain is largely qual. To show how to gain quant. information on  
biol. species at micro- and millimeter-wave frequencies, we introduce  
thermal modulation of a globular protein in soln., and show that  
changes in single-wavelength microwave **reflections** coincide with  
accepted visible absorption spectra, pointing the way towards gaining  
quant. chem. and biol. spectra from broadband terahertz systems.

L10 ANSWER 24 OF 76 CA COPYRIGHT 2004 ACS on STN  
AN 128:211383 CA  
TI **Microwave coherent backscattering** from acoustic or electronic waves in  
a magnetized plasma  
AU Pisani, Francesca; Pierre, Thiery; Batani, Dimitri  
CS Dipartimento di Fisica, Universita degli Studi di Milano, Milan, 20133,  
Italy  
SO Journal of Plasma Physics (1998), 59(1), 69-82  
AB A **microwave coherent backscattering** expt. has been carried out on  
Mirabelle, a weakly ionized plasma device, with the objective of

measuring the electron-d. fluctuation level. The expt. is a preliminary step in order to prep. the **detection** system for a microwave stimulated-**backscattering** expt. The incident electromagnetic wave is focused in front of a plane grid, which excites ion acoustic or electron Bernstein waves and induces fluctuations in the plasma. The **backscattering** signal is collected by the launching circuit and **detected** by homodyne mixing. The typical ratio of the **scattered** power to the incident power is about 10-12 and the relative d. fluctuations is of the order of  $\delta n_e/n_e \approx 10^{-3}$  against a background electron d.  $n_e = (1-5) \times 10^9 \text{ cm}^{-3}$ . The **backscattering measurement** is also compared with Langmuir-probe **measurements**, and gives good agreement with the relative d. fluctuations. The spectral width of the **backscattered** signal has also been studied, by taking into account effects due to the incident-wave focusing and plasma-wave damping.

L10 ANSWER 31 OF 76 BIOSIS on STN

AN 1996:372912 BIOSIS

TI Very new waves in very old meridians: Quantum medical physics of the living.

AU De Smul, Andre

CS Vrije Univ., Brussels, Belgium

SO Acupuncture and Electro-Therapeutics Research, (1996) Vol. 21, No. 1, pp. 15-20.

AB In 1982, Prof. Sik'Ko and co-workers found that human beings have energetic channels where a circulation of **coherent** millimeter **microwaves** takes place. Each individual has frequencies specific to the individual (Eigenfrequencies) situated between 40 and 70 GHz. Administration of **coherent microwaves** of frequencies on biologically active points of the channels (at the acupuncture points of the meridians) restores normal function and health by creating maximal vasodilation, restoration of immunologic parameters and balance between coagulation and fibrinolysis. A large amount of diseases can be treated, even preventively. As the intensities of these microwaves become very low and approach the quantum level, side effects are rare and contra-indications are very few. **Coherent microwaves** reflect at extremities, creating microsystems of holographic projections. Contrary to this, exposure to high intensity microwaves is potentially very harmful. Therefore, it is necessary for humans to take precautions and protect themselves accordingly.

L10 ANSWER 35 OF 76 CA COPYRIGHT 2004 ACS on STN

AN 120:230155 CA

TI Characterization of band structures and surface modes in two-dimensional photonic crystals

AU Robertson, William M.; Arjavalingam, G.; Lin, S. Y.

CS Inst. Inf. Technol., Natl. Res. Counc., Ottawa, ON, K1A 0R6, Can.

SO Proceedings of SPIE-The International Society for Optical Engineering (1994), 2041 (Mode-Locked and Solid State Lasers, Amplifiers, and Applications), 254-61

AB The ultrafast optoelectronic technique of **coherent microwave** transient spectroscopy (COMITS) is applied to the measurement of photonic band

structure phenomena in two-dimensional periodic dielec. arrays. The phase sensitivity of COMITS is exploited to measure the dispersion relation of electromagnetic radiation propagating in regular arrays of alumina ceramic rods. An attenuated-total-**reflection** configuration is used to demonstrate the coupling of microwave radiation to electromagnetic surface modes which exist at the interfaces of suitably terminated photonic crystals.

L10 ANSWER 39 OF 76 CA COPYRIGHT 2004 ACS on STN

AN 118:179127 CA

TI Low-temperature dependence of the foreign gas relaxation of cyanoacetylene with **microwave coherent transients** induced by frequency switching

AU Rohart, Francois

CS Lab. Spectrosc. Hertzienne, Univ. Lille I., Villeneuve d'Ascq, 59655, Fr.

SO Journal of Molecular Spectroscopy (1993), 158(2), 287-97

AB The temp. dependence of the rotational foreign gas relaxation of cyanoacetylene HC3N is investigated in the 150-300 K range on static gas samples. The expt. exploits the great sensitivity of the coherent **transient** technique, and a frequency-switched **spectrometer** was developed at a 3-mm wavelength: the frequency control setup is described and **analyzed** from the point of view of coherent **transient** phenomena. For the  $J = 11 \leftarrow 10$  line of HC3N, exptl. results on the relaxation induced by N<sub>2</sub>, H<sub>2</sub>, and He vs the temp., and by O<sub>2</sub> and Ar at room temp., are reported. Using the Anderson-Tsao-Curnutte formalism, the N<sub>2</sub>-induced relaxation of HC3N is theor. predicted for other rotational lines of interest for planetary atm. studies.

L10 ANSWER 42 OF 76 CA COPYRIGHT 2004 ACS on STN

AN 121:124329 CA

TI **Microwave spectrometer** based on **coherent** spontaneous emission radiation for **analysis** of high-purity gases and volatile substances.

**Determination** of methanol micro-impurities in high purity ethanol

AU Vaks, V. L.; Ermoshkin, A. E.; Pripolzin, S. I.; Sennikov, P. G.; Shushunov, N. V.

CS Inst. Khim. Vysokochist. Veshchestv, Mizhnig Novgorod, Russia

SO Vysokochistye Veshchestva (1992), (4), 168-76

LA Russian

AB A model of **microwave spectrometer** based on **coherent** spontaneous radiation (freely damping polarization) was developed and manufd. for **anal.** purposes. The operating range of **spectrometer** is 37-178 GHz; the min. **detectable** absorption coeff. is  $1 \times 10^{-10} \text{ cm}^{-1}$  that is close to the theor. limit; the resolu. is  $10^{-6}$ . Waveguide cell of 1 m length is manufd. from quartz. The **anal.** possibilities of the **spectrometer** are studied **detg.** the micro-impurity of MeOH in EtOH as an example. The accuracy of technique was tested by the method of mass spectrometry and gas chromatog. The limit of **detection** of MeOH in EtOH is  $8 \times 10^{-5} \text{ mol\%}$ .

L10 ANSWER 48 OF 76 BIOSIS on STN

AN 1991:404562 BIOSIS

- TI TOWARDS A QUANTUM PHYSICS OF THE LIVING STATE.  
 AU SITKO S P [Reprint author]; GIZHKO V V  
 CS PROVISIONAL RES COLLECTIVE 'OTKLIK', VLADIMIRSKAYA ST 61B, KIEV 252017, USSR  
 SO Journal of Biological Physics, (1991) Vol. 18, No. 1, pp. 1-10.  
 AB In this paper, we review the concepts, based upon experimental results, which allow us to conclude that living matter is one of the steps of the 'Weisskopf quantum ladder'. Some necessary conditions for responding selectively in frequency to low intensity microwave EMR are formulated. A model of an organism's 'electromagnetic frame' is used for interpretation and to reveal the nature of Chinese meridians and the laws of papillar patterns formation in embryos. The statement has been made that an organism's macroscopic stability is determined by its functional **coherent microwave** field. The complementarity of synergetic and quantum mechanical approaches towards the problem of the variable, differential stability of living organisms is discussed.
- L10 ANSWER 62 OF 76 CA COPYRIGHT 2004 ACS on STN  
 AN 101:203304 CA  
 TI Analysis of moisture in solids: a review of the last decade, or from Pande to the present  
 AU Pyper, J. W.  
 CS Lawrence Livermore Natl. Lab., Livermore, CA, USA  
 SO Report (1983), UCRL-53447; Order No. DE84011166, 25 pp. Avail.: NTIS From: Energy Res. Abstr. 1984, 9(14), Abstr. No. 26888  
 AB The scientific literature published since A. Pande's comprehensive monograph Handbook of Moisture Detn. and Control (1974) was surveyed (to mid-1983) for new or improved techniques of detg. moisture in solids. Particular focus was on methods that might distinguish between bound and free moisture in org. solids. The classification of moisture is discussed, as well as pitfalls in sampling, in sample handling, and in the comparison of different methods. Four methods that show promise of being able to distinguish between bound and free moisture were identified: dielec. spectrometry, **coherent microwave** anal., near-IR **reflectance** anal. (NIRA), and NMR. 81 Refs.
- L10 ANSWER 70 OF 76 CA COPYRIGHT 2004 ACS on STN  
 AN 82:131684 CA  
 TI Coherence in electronically excited dimers. II. Theory and its relation to exciton dynamics  
 AU Zewail, A. H.; Harris, C. B.  
 CS Lawrence Berkeley Lab., Univ. California, Berkeley, CA, USA  
 SO Physical Review B: Solid State (1975), 11(2), 935-51  
 LA English  
 AB A theory of **microwave** absorption in **coherent** or incoherent states of multidimensional crystals is developed. Application of the theory to the cluster states (dimer, trimer, tetramer,..., etc) of linear chain systems and its relation to microwave band-to-band transitions in coherent Frenkel excitons provides a new way of studying coherence in the excited levels of mol. solids. A quant. treatment of the influence of exciton-phonon coupling of spin dynamics in a 2-level system (dimer)

and the extension to a multilevel system (exciton) is given. The results show that zero-field ESR can directly **measure** the cross section of the **scattering** processes in the excited state and that the technique is applicable to other classes of solids. Moreover, the anisotropy and the magnitude of intermol. interactions can be established from these expts.

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STN INTERNATIONAL LOGOFF AT 08:59:35 ON 02 NOV 2004